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[OFFICIAL NOTICE.]

Annual Meeting, American Gas Light Association.

LAWRENCE, MASS., Sept. 11, 1889.

Section 12 of the Constitution is as follows:

"Section 12. *Application for Active Membership, or for Associate Membership, or for transfer from Associate to Active Membership, must be received by the Secretary at least ten days prior to the meeting at which the application is acted on.*"

To the Members of the Association: Gentlemen—As already announced, the Seventeenth Annual Meeting of the Association will be held at Baltimore, Md., on Wednesday, Thursday, and Friday, Oct. 16, 17, and 18. The headquarters of the Association will be at the Carrollton Hotel, which is conducted on the American plan. The meetings of the Association will be held in the Concert Hall of the Concordia Building, on German street near Eutaw.

As, in my circulars of July 29, I had considerable to say in the way of impressing upon members the necessity of procuring rooms in advance at the hotel, it is not necessary for me to say much on this point now. I would merely add, as a reminder, that the rate at the Carrollton is $3 per day, and if the members take the pains to write in advance for rooms they will all be taken care of.

I am assured by the Committee that the hall selected for the meetings of the convention is in all respects a desirable place. Certainly this is a good cause for rejoicing, because a suitable hall adds greatly to the pleasure of the meeting.

The Council has appointed the following gentlemen as the Committee to nominate officers for the ensuing year, namely: Chas. H. Nettleton, Birmingham, Conn.; Edward Lindsley, Cleveland, Ohio; D. H. Geggie, Quebec, Canada; Geo. S. Hookey, Augusta, Ga.; Ed. G. Cowdery, Milwaukee, Wis. Members who desire to see the names of any particular persons nominated for officers should make their preferences known to the members of the Committee.

I am requested to state that special arrangements will be made at Baltimore for the entertainment of ladies accompanying members to the meeting.

There is no change in the literary part of the programme, which is as follows:

"Fuel Gas," by Walton Clark.

"Gas Coals of the United States," by H. C. Adams.

"Care and Operation of Gasholders," by C. L. Rowland.

"Water Gas," by F. H. Shelton.

"Leakage and Condensation," by E. C. Jones.

"Purification of Gas from Kansas Coals," by B. E. Chollar.

"Conduct of the Electric Light Business in Connection with the Gas Industry," by W. H. Pearson.

"Advantages of Supplying a Mixture of Coal and Water Gas," by T G. Lansden.

"Some Thoughts on Fuel Gas, Induced from Practical Experience in the Distribution of Natural Gas," by John Young.

No particular effort has been made to add to the number of papers during the last month, as it is thought that to thoroughly digest these

dissertations will take up all the time of the meeting. I have the following conundrums for the Question-Box:

"Is it wise to make a special discount on gas used for cooking and heating?"

"Is the scheme of introducing air into gas for the purpose of reviving the iron a success?"

"What progress has been made this year in the matter of regenerative furnaces?"

"How shall firebricks and tiles be laid, wet or dry?"

It has also been suggested to me that if I remind the members that there are four water gas processes in operation in Baltimore, the fact may serve as an extra reason why the members should strive to be present at the forthcoming meeting, as they will have the opportunity to examine these processes side by side, and thus be the more able to determine the value of each.

If the members have any other questions for the box I would suggest that they be sent along as promptly as possible.

It is expected that the proper disposal of this programme in the allotted two days will be just sufficient tax on the energies of the members to make the relaxation of Thursday evening and Friday all the more enjoyable.

On the evening mentioned—the second of the meeting—the Association will be tendered a dinner by the Messrs. Bartlett, Hayward & Co. On Friday the Association will enjoy a sail down the beautiful bay, stopping at points of interest, and during the trip the members will be the guests of the Maryland Meter and Manufacturing Company. An inspection will also be made of the Chesapeake gas works, when we will be in the hands of the officers of the Consolidated Gas Company.

To the foregoing it is hardly necessary to add that the Baltimore meeting bids fair to be a profitable and enjoyable one. Each member should make strenuous effort to be present at the meeting.

I am now endeavoring to secure reduced railroad rates for the members attending the convention; a special circular on this subject will be issued to the members in a very few days. Those who are not now members of the Association and are intending to be present at the meeting should apply to the Secretary for a copy of the Transportation Circular. Yours truly, C. J. R. HUMPHREYS.

BRIEFLY TOLD.

THE APPROACH OF OCTOBER.—Our current notice is the third one that the Secretary has prepared in connection with the Baltimore meeting, which is now separated from us by but a month. The last notice is worthy of especial study, since it points the procedure hereafter to obtain in the manner and method of choosing by vote the Executive Management of the Association, as directed by the new constitution adopted last year. The Council have made their designation of the Committee upon whom shall fall the task of presenting to the Association a suitable list of office bearers. A glance at the names is sufficient to warrant the opinion that personal favoritism will take no part in their choice; that their selections shall be made upon the broad and perfect ground of the fitness of the nominees to guide the Association safely. In the meantime, however, it must be borne in mind that healthy partisanship—the diagnosis of the latter being easily made as partisanship that ends when the will of the majority has been recorded—is of the sort which insists on having a choice; and in that understanding and belief we hope Secretary Humphreys' admonition to members who desire to "see the names of any particular persons nominated for officers, should make their preferences known to members of the Committee," will be freely responded to. It is to be regretted that some one member of the Committee was not officially designated to be the receiver of all these expressed preferences, as we think such designation would lead to a greater freedom in the forwarding of what we may term personal preferences. Perhaps it is the understanding that Mr. Nettleton (whom we take to be the Chairman of the Committee) is the one to whom the members shall speak their mind in this respect; but in any event, members should not be chary in making their personal preferences known, no matter to who of the Committee that choice is forwarded. We also believe that the "four water gas processes in operation in Baltimore" ought to act as a magnet to some or even to many; for behind some one of these possibly stalks the outline of Chief Engineer Hambleton's researches in the instance of fuel gas. From one or two hints that have been given us we incline to the view that Mr. Hambleton has been doing good work—although quietly, as is his wont—in this direction for some months past.

GAS GOT THE VERDICT.—Some weeks ago General Manager Crawford Livingston, of the St. Paul (Minn.) Gas Light Company, having informed us that a test as to the relative merits of gas and electricity for the lighting of the local court house and city hall was then in progress, promised to send us the results. In accordance with that promise we are now enabled to lay before our readers the decisions arrived at, and which are contained in the following report of the Sub-Committee on Lighting:

"*To the Honorable Joint Committee on the Court House and City Hall:*—The undersigned, your Committee to whom were referred the bids for lighting the court house and city hall made by the St. Paul Gas Light Company and the Edison Electric Light Company, beg leave to report as follows:

"First.—Your Committee have carefully considered the bids and have notified the representatives of the respective companies to appear and be heard and exhibit their respective lights, and the representatives of both companies have been fully heard by your Committee.

"Second.—If the electric light is to be used your Committee find that the bid of the Edison Electric Light Company is lower than that of the St. Paul Gas Light Company, if the lights of both companies are of the same efficiency; and each company claims that its light is the better.

"Third.—The Edison Company offers to furnish its electric light for 9.5 mills per hour, for each 16-candle power light, and 60 cents for each lamp renewal—the life of a lamp is generally deemed to be 600 hours of use.

"The St. Paul Gas Light Company offers to light the building with gas for $1.50 per 1,000 feet.

"An investigation of lighting the court house under these bids has been made by your Committee, and they are of the opinion that it would be much cheaper to light the building with gas under the bid of the St. Paul Gas Light Company, and that the light furnished under the system used by it in lighting by gas is better light than the electric light.

"Your Committee found that the light furnished in the main hall of the court house by the St. Paul Gas Light Company at the present time is in their opinion from 15 to 20 per cent. better than the light would be if furnished from the same number of lamps of the Edison Company, of the same character as those furnished generally throughout the city as 16-candle power lights.

"The burners used by the Gas Company in the main hall are what are termed 5-foot burners, and they burn, according to a test made in the presence of your Committee, between 4 and 5 cubic feet of gas per hour—that would make the cost of a burner per hour—if we say that 5 feet is burned in an hour—7.5 mills.

"If the gas is used nothing has to be paid for lamp renewals, and the result, in the opinion of your Committee, is this: The light offered by the St. Paul Gas Light Company under its bid is at least 15 per cent.—or 15 per cent. more light—more than that offered by the Edison Company for each burner; and the Gas Company offers the burner and its light 20 per cent. cheaper than the Edison Company offers its light.

"Under these circumstances we respectfully recommend that the contract be let to the St. Paul Gas Light Company.

"WALTER H. SANBORN,
"PETER BOHLAND,
"MATT LEITHAUSER, } Committee."

In accordance with this report the Council decided to award the contract for the entire lighting of the building—including the vaults—to the St. Paul Gas Light Company, at its figure of $1.50 per 1,000 cubic feet. The gas men naturally are much elated over this result, more particularly, perhaps, in regard to that portion of the agreement which authorizes them to light the vaults, for it was on this point that the Edisonites were most confident. Their specious arguments in respect to the greater superiority of incandescent electric lighting over gas for lighting unventilated interiors failed of the desired effect. The greater portion of the burden of the contest rested upon the shoulders of Mr. Livingston, but the signal victory achieved repays him amply for his well directed labors. We desire to thank him for his courtesy to us in forwarding particulars concerning the progress and termination of the contest.

MR. GEO. D. BILL, Superintendent of the Malden and Melrose (Mass.) Gas Light Company, will soon be able to compare notes with Fred. Bredel over their mutual favorite pastime—fishing—even though there is great difference in the method of capturing the game as between Marblehead and the Gogebic Lakes.

AT the annual meeting of the Concord (N. H.) Gas Light Company the following Directors were chosen: John Kimball, Joshua B. Sanborn, Edgar H. Woodman, Henry McFarland, Ferd. A. Stillings, John P. George and Lyman D. Stevens.

THE gas rate at Winnipeg has been reduced to $2 per thousand, a cut of $1 per M.

THE Massachusetts Gas and Electric Light Commissioners have rendered a decision in the case of the appeal of the Middleboro Electric Light and Power Company, who asked that the franchise granted by the Selectmen to the Middleboro Gas Light Company to distribute electricity be revoked. The Commissioners revoked the latter Company's license.

Stopped Ascension Pipes.

By R. Ross.

[A paper read before the North of Ireland Association of Gas Managers.]

There has been a great deal written and said on this subject of stopped ascension pipes, and remedies have been tried and suggested. Still it is not unfrequent that one hears sore complaints of this dire enemy—an enemy which renders the manager's life miserable, and spoils the results of otherwise good work in the retort house. And anyone who has had the experience of half-an-hour's work with a red-hot bar or auger in striving to clean a choked ascension pipe, will agree with me when I say it is anything but pleasant.

There can be little doubt that the cause of choked ascension pipes is mainly to be attributed to high heats and the description of coal used. This must be evident to all who have suffered, as experience must have shown that the lowering of the temperature of the retorts serves at once to diminish the number of choked pipes. High heats produce two effects which tend to blocked pipes—first, a much more rapid evolution of gas; second, a distillation by which the more volatile constituents of the tar are driven off, leaving behind the residual pitch. The rapid evolution of the gaseous properties of the coal tends to carry with it the finer and lighter particles of the coal itself. Especially is this the case with a coal that is dusty. Hence the kind of coal used enters prominently into the question.

In the season of 1882-83 I had a very unpleasant experience indeed with choked ascension pipes, more particularly with the bottom retorts of a bed of threes in the end of a stack of five beds of fives. I was using long spiked Arley coal, in two cwt. charges of six hours' duration. The bed of fives next the threes was also at work, and the heats were high. My retorts are ovals, 21 in. by 15 in. by 8 feet long, with Morton's lids. The bench had been remodeled about two years previous to the time I am now speaking of, by Messrs. Gibbons, of Dudley. The ascension pipes are 5 inch, and those connected to the top retorts are 8 feet long, and those leading from the bottom ones, 12 feet. Before the final stoppage took place I remarked when the retorts were opened that the mouthpieces appeared very dry; and any tar in them was tough and sticky. Having had experience before with choked pipes, I was afraid my old enemy was about to trouble me; and I was right in my fears. As at last the flame showed all round the mouthpiece, we opened the lids and attacked the barrier from below, but failed to reach it. We then took off the top flange, and found the stoppage about midway in the pipe. We had to break a hole in the roof to allow the insertion of the bar into the pipe; and it took about an hour's hard and laborious work to get an inch and a half red-hot bar through the block, which we felt was all around the pipe for about 9 inches in length. We worked with the threes for about a week longer, having to go through the same process almost every charge; I then had to give them up, and start another oven.

In the summer following I took down the stand-pipe, and, on examination, discovered a hole of about an inch in size in the center of the obstruction, this having been made with the bars—the remainder being quite solid for about a foot in length. I had to lay the pipe on red-hot coke for some time to get the stuff out, much of which had the appearance of coal dust—being hard, dry and dusty. After cleaning the pipe I drilled a hole and tapped it for a ½ inch iron pipe in order to connect it to a ¾-inch steam pipe (which runs along the whole length of the bench on the top, with a ½-inch branch to each oven), to steam it if required, which, I am happy to say, was not.

I examined the hydraulic main at the same time, and found a lot of hard, ropy tar in the bottom. This I cleaned out, and fixed a connection at the end of the main, whereby I can at once remove all the tar as made; and my dip-pipes are now sealed in water, in place of tar as formerly. I also changed from long-spiked Arley to Mickley coal; and I have not been visited since by the "evil spirit" in the ascension-pipes. Whether the changing of coal or the taking away of the tar as made, and sealing the dip-pipes in the water, or all combined, led to the happy result, I am unable to say; but a choked pipe is now unknown in our works.

I may mention that on my examining the dip-pipes when cleaning the main I found they varied in seal from 1½ to 2½ inches. The main, being a continuous run the full length of the bench, had sagged so much as to cause this variation in the seal. This I remedied as best I could; and when adjusting the apparatus for taking off the tar, I kept lowering the adjusting coupling until the retorts began to "bark," when I raised it a little, and finally fixed it so that I have a seal of from ¾ inch to 1 inch, and I work my exhauster at level gauge.

Many are the suggestions that have been made to overcome the difficulties in connection with choked ascension-pipes—such as placing in the mouthpiece a grate, with shelves; and setting a flat-bottomed metal pot full of water in the mouthpiece under the ascension pipe, in order that the steam arising from it should ascend the pipe and keep everything soft. Some put one or two shovelfuls of coal soaked in water in the mouthpiece, after charging, for the same object. It was thought by another that if the ascension-pipes were surrounded with a water jacket they would be greatly protected against the heat radiated from the bench. Other managers have coated the pipes with some non-conducting composition to gain the same result. Another believed that the evil arose from the heat in the pipe, and recommended that it should be enlarged and placed at a greater distance from the brickwork, and that the latter should also be made thicker in front and top; also that a shield fender or flame-plate should be placed so as to effectually prevent it becoming heated by radiation from the brickwork. Others attributed the stoppage to a variety of causes—such as irregularities and obstructions caused by a badly-cast pipe: too deep a seal to the dip-pipes; the hydraulic main being insufficient in size to carry off the gas freely; and a still more fruitful cause, that of allowing the charge to remain in the retort beyond the time necessary to drive off the gas. In this case the higher temperature of the incandescent coke, acting upon the tar or other ingredients in the ascension-pipes, drives off the more volatile constituents, leaving a dense incrustation, which speedily blocks the pipe. I have tried some of these remedies, but with little success. I am, however, strongly inclined to believe in the latter opinion, as I found that when I cut the charges as soon as the gas was driven off, stoppages ceased, or, if one did take place, it was slight and easily remedied. My opinion is that if the tar is taken off as made, and the dip-pipes sealed in water, and the charges drawn directly the coal is carbonized, there will be but few choked pipes.

Anyone present wishing to see the plan which I adopted in order to draw off the tar as produced from the hydraulic main can do so from the pen-and-ink sketch which I have here. I have had this method in use for rather more than five years; and with the exception of a very severe, cold winter, and working at the other end of the retort house from where the apparatus is fixed, it never ceased to act. To guard against this I have a ½-inch steam pipe from the boiler, which I can apply at a moment's notice; and a few minutes' application softens the tar, which flows away as usual—having water only to seal the dip-pipe. All the tar made flows through this connection, and the surplus liquor travels along with the gas to the other end of the hydraulic main.

Discussion.

Mr. J. Nisbett (Portadown) said he had listened with very great interest to Mr. Ross's paper. He had, however, very little experience of stopped ascension-pipes; but he believed they generally arose from working with heats too high, or leaving the charge in when the coal was fully carbonized.

Mr. W. Mearns (Dronmore) stated that the retorts at his works were made of clay; and therefore they never got choked. If the retorts had been made of iron no doubt he would have had some experience of this annoyance.

Mr. T. Frizelle (Holywood) remarked that, except during a portion of last winter, he never had very much trouble with stopped ascension-pipes.

Mr. H. A. Smith (Enniskillen) observed that he had had no experience of stopped pipes.

Mr. C. Outon (Inchicore) stated that he also had had very little experience of the trouble that was the result of ascension-pipes becoming choked and stopped up. At his works they took steps to prevent the pipes becoming unduly heated; and as this was very often the cause of stopped ascension-pipes, he had very little trouble in that respect.

Mr. C. B. Tully (Sligo) said that at his works he had experienced a great deal of trouble as the result of stopped ascension pipes.

Mr. Outon thought that much depended upon the thickness of the wall; and the thicker the wall was the less chance there was of the pipes becoming stopped.

The President was of the same opinion as the last speaker. He was at present trying a number of experiments, and this was one of them: He had a wall 4½ inches thick, and another 9 inches. He found that in a wall of the smaller thickness, the pipe got choked up now and then; but in the use of the 9-inch wall choking was not so frequent.

Mr. Outon inquired if the President had tried a 14-inch wall, and if so what was his experience?

The President said he had not yet tried a 14-inch wall. He was going to do so, and would be able to describe the results at the next meeting of

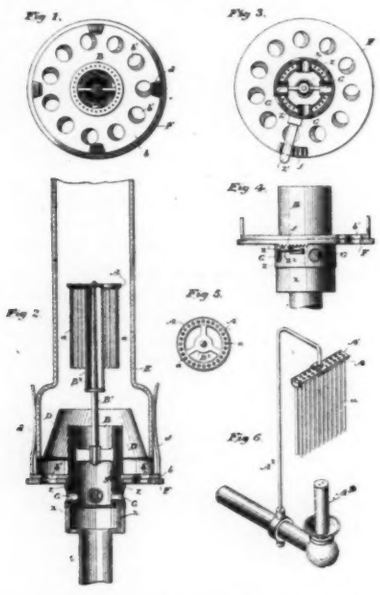
the Association. He thought that with a 14-inch wall there ought to be very little trouble of that kind.

Mr. Outon said that was also his opinion.

The Harris Incandescent Gas Burner.

Letters Patent, No. 410,549, were granted on Sept. 3 to C. B. Harris, of New York, for "useful improvements in incandescent gas burners." Having explained that the invention relates to that class of burners in which an incandescing element, pencil, or filament is suspended in or above a hydrogen or water gas flame, the inventor goes on to say:

My invention relates, first, to the incandescing element, and second, to the burner proper. In many lamps of this kind a vertical pendent pencil, formed of a mixture of some refractory earth—such, for instance, as magnesia, zirconia, etc.—mixed with some vehicle or binding material, has been employed, such pencils being formed by expressing the compound through a suitable die. With such an incandescing element it is important to reduce the amount of material in the pencil to a minimum, so that it will become readily and instantly incandescent in the heat of the flame, a group or number of such pencils being employed for each burner; but it is not practicable to make the pencils very slender, as after being burned they are delicate and frail. I purpose making the pencils tubular and with as thin walls as possible, so that a minimum of material will afford a maximum illuminating surface, and the mass of the material in each pencil be so small that it will at once become incandescent on exposure to the heat of the flame.



Further, in burners of this type I employ a reflecting core, preferably of the same material as the pencils or filaments, arranged centrally within the circle of pendent pencils. When magnesium is used it is perfectly white, and reflects outwardly all the light and heat thrown toward the center of the burner. Further, I provide a certain improvement in circular burners, by which air may be supplied to the center and exterior of the flame, and both supplies be simultaneously adjusted, either to increase one and diminish the other, or to increase or decrease both by a single movement.

In the accompanying drawings, Fig. 1 is a top view of my improved burner, with the chimney, incandescent material, and cone-shaped deflector removed; Fig. 2, a vertical central section of the complete burner; Fig. 3, a bottom plan view; Fig. 4, a side elevation, with the chimney and cone-shaped deflector removed; Fig. 5, a detail plan view illustrating a group or head of tubular pencils arranged above an ordinary fishtail burner.

The incandescing elements or pencils *a* are made tubular, the opening through the core preferably extending entirely through them from one end to the other. They may be made of a mixture of magnesia and starch or magnesia and glue, and made in the same manner that ordinary small macaroni is made—that is to say, a plastic mixture of magnesia and binding material is expressed through dies of suitable construction to produce elongated tubular filaments. These filaments are preferably allowed to dry, and are then cut into the desired lengths. After being burned they are ready for use. When such pencils are suspended above a flame they heat both from the exterior and interior, and, as will be obvious, a maximum amount of illuminating surface is attained with a very small quantity of material, and consequently they quickly become incandescent. The same amount of illuminating surface may, therefore, be obtained with a less quantity of gas. They may be carried in a trough-shaped head *A*, the pencils projecting through apertures in the trough, and be held in place by a packing of cement *A'*, preferably of the same compound of which the pencils are made, applied while in a plastic condition. In Fig. 6 such a head, mounted upon a suitable support A^3, is shown suspended above an ordinary fishtail burner. In the other figures a different type of burner *B* is shown. It is of circular or Argand shape. From the interior of the cylindrical burner an upright or post *B'* extends, and upon this post may be mounted the central light and heat reflecting core B^2, which in this instance is an elongated cylinder placed over the post and resting upon a flange thereon. The pencils *a* are suspended above the burner *B*, and carried, in the same manner as shown in Fig. 6, in a circular head or trough, being supported centrally upon the post *B'*.

The burner *B* is provided with the ordinary horizontal annular flange *b*, upon which is mounted the ordinary cone-shaped deflector *D* and spring-arms *d*, that hold the lamp chimney *E*. The horizontal flange *b* is provided with a series of apertures *b'*, and a circular movable plate *F*, having corresponding apertures, is arranged beneath the flange. By turning the plate the amount of air admitted to the exterior of the flame may be regulated. Below the plate *F* a series of short horizontal tubes *g* extend from the outer wall *x* of the burner to the interior of the inner cylinder *y*, and around the outer wall *x* is arranged a movable collar or band *z*, having apertures corresponding with the tubes *G*. By moving this band, therefore, the amount of air supplied to the interior of the burner may be regulated. The band *z* is provided with a projecting spring-arm *z'*, by which it may be turned, and this arm has upon its upper face a tooth z^2, that engages in notches *f* in the under face of the movable ring *F*. When the ring or band is turned so that the tooth does not engage the notches *f*, either may be adjusted separately. By bringing the tooth into engagement with one of the notches, the movement of the arms *z'* actuates both the band *z* and the ring *F*, and as the parts are adjusted the supply of air must be simultaneously increased at the center and decreased at the exterior, or vice versa, or both supplies may be increased or decreased together.

The Moses Gas Manufacturing Apparatus.

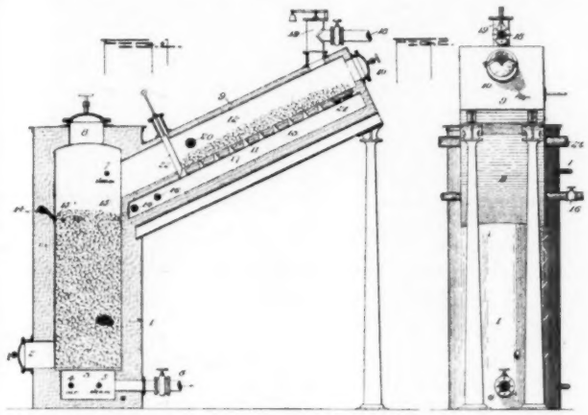
U. S. Letters Patent No. 410,174 were, on September 3d, granted to Frank Demming Moses (Zanesville, O.) for a gas manufacturing apparatus. As stated by the applicant, the object of the invention is to provide a gas apparatus adapted to economically manufacture gas from soft or bituminous coal, and particularly from slack, culm, or breeze, with the aid of air and steam. To this end a special form and arrangement of what, for convenience, may be styled a "retort" or "retort chamber" has been devised in combination with a generator chamber, the construction being such that gases from the gas generator may be compelled to pass through the body of coal in the retort.

Heretofore, vertical retort chambers have been located above a fuel or steam decomposing chamber or generator; but such arrangement is to some extent defective in operation, for the reason that the charge of soft coal when partially fused and expanded by heat becomes packed and caked in the retort chamber, requiring considerable mechanical force to break it up so that it can be forced down into the generator; and, further, the gases ascending through this mass of caked coal from the generator form for themselves irregular and fortuitous paths inconsistent with uniform and satisfactory results. Horizontal retorts have also been employed in gas making furnaces in combination with generating chambers. These afford more room for the expansion of the hot and semi-fused mass of coal; but they do not provide for the passage of gases through the coal, and they require an unnecessary amount of labor to break up the caked coal and force it into the generator.

This invention consists in a construction and arrangement of a fuel magazine or receptacle which may be called a "coking chamber," that permits its contents to freely expand, and which also provides for passing hot gases from the generator transversely through the coal in said chamber, and also provides for an easy and convenient transfer of the coal to the generator, the packing of the coking coal in the coking chamber being avoided by its freedom to expand upwardly and by the dividing effect of numerous transverse gas currents.

In the drawings, Fig. 1 is a vertical section of the generator and coking chamber, and Fig. 2 is a view looking toward the outer end of the chamber.

1 indicates the generator, made of brick, inclosed by metal or constructed in any suitable manner and provided with a door 2 and grate 3, and having in the ash pit an air inlet 4, a steam inlet 5, and a gas outlet 6. In the upper part of the generator is a steam inlet 7. The charging hole 8 is sealed in any usual manner. Communicating with the generator is an extension 9, styled, for convenience, a "coking chamber," into which fresh coal is charged through a door 10, that can be closed gas-tight when desired. This extension may be made about 3 feet wide by



2½ feet in depth, and the generator about 4 feet in diameter, and each about 10 feet in length, though these dimensions may be varied. The coking chamber is provided, preferably below its central plane, with a perforated diaphragm 11, dividing its interior into a coal chamber 12 and a combustion chamber 13. The latter communicates with the generator by means of an annular flue 14, having openings 15 into the same.

16 indicates an air inlet; 17, passages through the diaphragm; 18, a gas outlet connecting through a water seal with a scrubber and holder; 19 an outlet for waste or producer gas, which may be made to communicate with a gasholder, and which is provided with a cover that can be made gas-tight when necessary.

20 indicates a modification of the retort in respect to the gas outlet, and 21 a damper which may be used in connection therewith.

22 is a damper or cut off which serves to prevent gases from the generator passing directly into the retort, and to compel them to pass into the annular flue, and thence into the combustion chamber 13. This damper also serves to prevent the fresh coal from sliding or rolling down into the generator, particularly when the retort is much inclined. The inclination illustrated of about 1 foot in 3 is a very suitable one.

The construction described is in operation not inconsistent with the use of regenerators, which might conveniently be arranged to support the retort, though their use is not essential, and the retort can be supported upon masonry of suitable character.

The operation of the apparatus above described is as follows: The generator is at first charged with coke or anthracite coal, which being ignited, is raised to incandescence by an air blast introduced beneath the grate. The products of combustion enter the annular flue 14, and pass thence into the combustion chamber 13, where they may be more completely burned by admission of air through inlet 16. The hot gases pass through the perforated diaphragm and out of the exit 19. Fresh coal may be charged into the retort either before or after the above-described step. If charged previously, then the products of combustion which pass through 17 and through the coal are partly decomposed, and the carbonic acid is converted into carbonic oxide and somewhat enriched by the coal gases, particularly if the air supply in chamber 13 does not exceed the amount required to convert the producer gas into carbonic acid and vapor of water. When the coke in the generator has been rendered incandescent, the air supply at 4 is cut off, and steam is admitted through 5 and passed up through the hot coal of the generator, which decomposes it, producing water gas. This gas passes into the lower chamber of the retort and through the perforated diaphragm. The air supply to the lower chamber having been cut off, the outlet 19 closed, and the gas outlet 18 opened, the water gas is passed there through to its holder. If the retort be charged with fresh coal after the air blast below the generator grate is cut off, and before the water gas is passed through the retort, it serves to enrich the latter, air of couse being excluded at every point. If the producer gas is burned in the retort and the carbonic acid thus produced not reconverted into carbonic oxide, as set forth above, the products are waste gases, and may be discharged into the open air or used to heat regenerators in the usual way. Otherwise they may be conducted to boiler or other furnaces and burned while hot. Preferably the fresh coal is charged at a time when it will operate to enrich the water gas rather than the producer gas.

The use of the diaphragm is to support the fresh coal and the passing of gases through the perforations 17 is an important feature. By this construction the gas is divided and made to pass through the coal in numerous small currents, and this has the effect to thoroughly distill or expel the coal gas, and also to perforate or cut the coked coal in the line of each gas passage 17. The contents of the retort when coked are, therefore, transversely honeycombed by the action of the gases, and are very readily broken up when subsequently the damper or cut off 22 is raised and the coke is pushed down the inclined diaphragm into the generator, the retort door having been opened for the purpose. The passages 17 are preferably constructed at the upper ends so that fine coal may not fall through them in any considerable quantity, and they are made wider at the bottom to facilitate the entrance of gases.

If desired, the damper 21 may be partially or wholly opened and a part of the producer gas passed there through and out at 20, said outlet being connected with a gasholder in any usual way. It is preferred, however, always to compel a considerable portion of the gases to pass transversely through the diaphragm and the coal resting thereon, and the gas may be taken out either at 18 or 20, waste or producer gas being taken out at 19. If desired, at suitable times steam can be admitted at 7 and passed down through the incandescent coke, and the water gas thus produced can be taken out at 6, which may be found useful occasionally to avoid quenching the base of the fire by the too continuous introduction of steam at that point.

The use of the above-described apparatus, which may be varied as stated, is not inconsistent with the employment of two beds of incandescent fuel though which steam may be passed in succession, nor with the use of oil as an enriching agent, nor with other well known features of present gas making practice.

Light in the Sick-Room.

Dr. B. W. Richardson, in the course of a lecture on "Disease, and how to combat it," makes the following remarks:

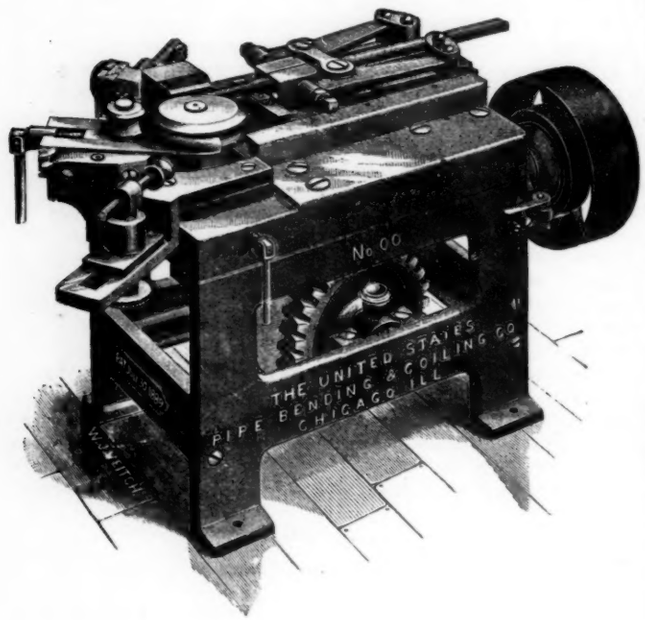
Still a custom prevails, despite all our sanitary teachings, that the occupant of the sick-room in the private house should be kept at all hours in a darkened room. Not one time in ten do we enter a sick-room in the daytime to find it blessed with the light of the sun. Almost invariably, before we can get a look at the face of the patient, we are obliged to request that the blinds may be drawn up, in order that the rays of a much greater healer than the most able physician can ever hope to be may be admitted. Too often the compliance with this request reveals a condition of room which, in a state of darkness, is almost inevitably one of disorder everywhere; foods, medicines, furniture, bedding misplaced; dust and stray leavings in all directions.

In brief, there is nothing so bad as a dark sick-room; it is as if the attendants were anticipating the death of the patient; and, if the reason for it be asked, the answer is as inconsistent as the act. The reason usually offered is that the patient cannot bear the light; as though the light could not be cut off from the patient by a curtain or screen, and as though to darken one part of the room it were necessary to darken the whole of it. The real reason is an old superstitious practice, which once prevailed so intensely that the sick, suffering from the most terrible diseases, smallpox, for instance, were shut up in darkness, their beds surrounded with red curtains, during the whole of their illness. The red curtains are now pretty nearly given up, but the darkness is still accredited with some mysterious curative virtue.

A more injurious practice really could not be maintained than that of darkness in the sick-room. It is not only that dirt and disorder are results of darkness, a great remedy is lost. Sunlight is the remedy lost, and the loss is momentous. Sunlight diffused through a room warms and clarifies the air. It has a direct influence on the minute organic poisons, a distinctive influence which is most precious, and it has a cheerful effect upon the mind. The sick should never be gloomy, and in the presence of the light the shadows of gloom fly away. Happily the hospital ward, notwithstanding its many defects, and it has many, is so far favored that it is blessed with the light of the sun, whenever the sun shines. In private practice the same remedy ought to be extended to the patients of the household, and the first words of the physician or surgeon on entering the dark sick-room, should be the dying words of Goethe, "More light, more light!"

Fowler's Pipe Bending and Coiling Machine.

The illustration herewith given shows a machine adapted to bend, coil, or cone pipe, in any shape desired, without either heating or filling it, the pipe being actually improved in condition by being subjected to the cold-rolling operation of the machine. The pipe is fed through dies shown in the illustration, and thence through and around circular dies, the machine being adapted to bend either the heaviest wrought iron pipe or the lightest brass and copper pipe with perfect accuracy as regards the size of bends wanted or the diameter or spacing of the coils. Any number of a particular coil, as regards diameter or spacing, can be



made at the rate of three feet a minute after the machine has been adjusted to the size wanted. The machine is simple in construction, having comparatively few parts, which are very strongly made. With its use there is no scale made on the inside of the pipe, which is always an accompaniment of hot bending; and with brass or copper pipe no refinishing is required after the pipe has passed through the machine. Any length of pipe can be bent or coiled by the machine, its capacity in that respect being limited only by the longest pipe the manufacturer can supply or the space permitted for handling. This machine is especially calculated to meet the wants of manufacturers of coil boilers, feed water heaters, car heaters, plumbers' goods, gas and electric light fixtures, and of those fiting up apparatus for making artificial ice and for cold storage, and for distilleries of all kinds.

The Sidero-Cement Pipe.

Among the numerous exhibits in and about the French Exposition buildings is to be found that of J. L. Bornave, whose specialty is the manufacture of what is termed Sidero cement pipe. For several years there have been manufactured in France different styles of cement pipes for water and sewer work, with a framework of wire netting or wire rods encased in the cement. This is also used for tanks and watering troughs. But all these could not stand high pressures, and were liable to deformation and cracks from springing. This new system of M. Bornave consists in having a frame made of small I rods of steel from one-half to one inch in height, and a thickness of $\frac{1}{2^5}$ to $\frac{1}{1^3}$ inch. The rods are wound spirally on a special machine, and similar rods are laid longitudinally inside and made fast by wire. This frame is then set up on end, bell end down, a core is placed inside and a casing outside, then the cement is run in gradually, allowing all the air to rise to the top. When finished the thickness is one inch or less, usually.

In practice the pipe is made on the ground where it is to be used. All the material is shipped in bulk, and the necessary machinery, which is easily handled, is moved from place to place as needed.

For each special case the size of iron is calculated, as also the thread of the spiral to which it is wound, so as to use as little as necessary. But all the strain is considered as bearing on the iron, and the cement acts only to close the openings. Where bell joints are used the rods are closer together at the bell, so as to stand the strain of calking a lead or cement joint.

The following claims are made for it: The expansion of the steel and the cement under different temperatures in practice is about the same—0.000014349 for the cement and 0.000011899 for the steel. When finished, the pipe is lighter than cast iron and less expensive, is not attacked by the water, and does not rust or stop up.

For a head of from 15 to 20 meters (50 to 67 feet) the comparative cost in Paris is said to be as follows:

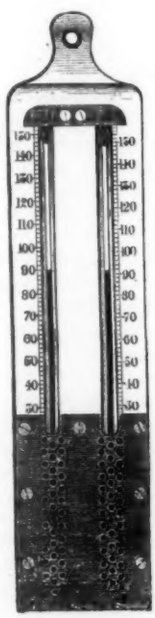
12-inch	pipe of	cast iron,	19	frs.	per meter;	Sidero-cement,	15	frs.
16	"	"	27	"	"	"	22	"
20	"	"	37	"	"	"	27	"
24	"	"	46	"	"	"	37	"
28	"	"	58	"	"	"	46	"
36	"	"	89	"	"	"	61	"
48	"	"	136	"	"	"	84	"

The flanges of the I-rods make a tie in the cement that does not exist with round or square rods. The mode of manufacture allows of varying the strength of the pipe as required.

This pipe has been used for about a year, some specimens having been used for reservoirs which had a measurement of 25 meters (82 feet) in diameter. It may be made for sewer sections, eliptical, oval, or any other shape.

A New Coal Gas Detector.

Messrs. Pitkin & Niblett, of London, have patented a coal gas detector that seems to us to have many good features. The accompanying engraving gives a good idea of the instrument, which consists of two mercurial thermometers mounted on a boxwood scale, and having a perforated ebonite cover over the thermometer bulbs. With this arrangement the gas and air have free access to the active parts of the instrument, and at the same time the bulbs are protected from dirt and accidental damage. The left-hand tube is the gas indicator,



while the other merely acts as a temperature register of the surrounding air. When the detector is placed in an atmosphere of coal gas, or coal gas and air, an immediate rise of the mercury in the indicator stem is observed. This rise of temperature is proportional to the explosive activity of the gaseous mixture. To estimate the approximate percentage of gas present, the difference in degrees of the two thermometer readings is taken. The indicators may be pointed off in terms of percentages. On attaching a cord to it, by means of the hole shown at the top, the instrument may be lowered into otherwise inaccessible places. If used in conjunction with an electric safety lamp, an extremely safe and efficient method of detecting the presence of explosive mixtures of coal gas and air is afforded.

[Prepared for the JOURNAL.]

Information Wanted.

By INQUIRER.

The interesting subject of "Natural Gas" has been written up quite extensively, in a certain way, since its discovery and practical application to various uses. We have been told of its composition, gravity, the depth and strata in which it is found, the methods of using it to the best advantage, the probabilities of its exhausting in the near or distant future, and numerous other items concerning it have been freely given us.

One line of information, however, and one of especial interest to gas engineers, seems to be generally avoided. I refer to the details, difficulties, and problems involved in its transportation from the distant gas wells to the point of consumption.

On these heads the writers have been dumb as oysters.

We have been able to pick up some general information on the subject; but these must be considered as mere "crumbs from the table." We know that it is conveyed in small-sized mains with screw joints, and that it is helped on its way by pumping stations; and this is about all. Books have been written having "Natural Gas" for their sole theme, but their contents are of a general nature. The publications of the American Society of Mining Engineers have been searched in vain for information on the subject.

It may possibly be the case that such information is considered a professional stock in trade by engineers who have taken up the business. Considering the importance of the discovery and wide-spread use of natural gas, the amount of literature does not correspond with the magnitude of the subject.

The items of initial pressure, temperature, condensation *en route*, specific gravity, etc., must enter largely into any calculations regarding its transportation and the difficulties connected therewith.

A paper* by Mr. Emerson McMillin, on the subject of "Natural Gas," read at the ninth annual meeting of the Western Gas Association, gives many interesting facts and figures on the subject; but since that date (1886) there have been several lengthy pipe lines laid, and much practical information gained by some one.

The owners of wells a hundred miles or more distant are knocking at the doors of some of our large western cities for permission to enter, and if this matter of pipe laying is to them no problem, except as to cost, we may eventually find their extended arms, octopus-like, stretching towards the seaboard cities.

Just here a thought comes in. If natural gas can be carried long distances over hills, valleys, rivers and other natural obstructions, and sold at a profit, why cannot the old idea of gas works located at the coal mines be carried out? If there is any condensation in the mains, and the inequalities of surface should be extensive, the number of drips to pump on long lines would be awful to contemplate.

The question has been raised whether the old rules and formulæ for the distribution of gas through mains will be correct for such long distances. There seems to be some doubt on this point, which can be cleared up only by positive knowledge gained by experience.

In the paper above mentioned by Mr. McMillin the author speaks of a patented system, by Col. Thomas P. Roberts, for low-pressure lines, the pressure being reduced to and below that of the atmosphere—the gas being carried in sheet iron pipes, and drawn through by exhausters. For passing the gas over elevations he suggests heating the gas on the inlet side, and cooling it on the outlet side of the elevation. This suggestion does not seem to be very practical.

The use of exhausters for overcoming the friction would be, of course, preferable to pumps; or, in other words, gas can be drawn through a pipe easier than it can be forced through.

In the case of a long pipe, the question arises, whether the exhauster would not be exhausting on the inlet side and pumping or forcing the gas on the other. This would be the case unless the different exhausters could be run at the same speed; or, in other words, the forward exhauster would have to take the gas away as fast as delivered by the rear one, so as to allow of no accumulation of gas at the outlet side.

Have we not some member of the National Association who has a fund of practical knowledge on the subject treated of here, who will, at the coming annual meeting, open his fund of accumulated wisdom and give us facts and figures, that we may profit thereby?

THE Franklin (Tenn.) Electric Light and Power Company has been chartered. An attempt will be made by its promotors to secure a contract for the public lighting.

* See JOURNAL, August 16, 1886.

Cessation of Work on Sundays.

By T. D. Hall.

[A paper read before the North British Association of Gas Managers.]

The reason I have chosen this subject for a few notes is that in the works I have charge of we do not, as a rule, make gas on Sunday between the hours of 6 A. M. and 6 P. M. This is a custom not generally adopted in gas works. Rather the reverse is the case, Sunday very often meaning a hard day's work to the stokers, in making up the extra gas sent out from stock on Saturday night; although that night has not always the heaviest consumption, for in winter, in towns where there are public works, the state of the weather has more effect on the output of gas than the day of the week. Of this, no doubt, many of you have had ample experience.

The time was when making gas on Sunday was looked upon as a necessity, therefore a matter of course, and even to-day, in many works, the existing arrangements for the manufacture and storage of gas are such that to keep up the supply in the coming week gas must be manufactured on Sunday; but I think it can be made very clear to most of us that the difficulties lying in the way of cessation of work on Sunday can be removed by the expenditure on a little more plant, with extra labor on other days of the week. If we admit, which I think we all will, that it is a duty we owe to our fellow men, to do all that is in our power to lessen Sunday labor, and give our stokers a rest on one day of the week, then it is equally our duty to provide means to accomplish that end, even running the risk of spending a few pounds in doing so. I am certain that none of us here care to have much work to do on Sunday, though gas managers, especially of small and medium-sized works, rarely, I might say, get out of harness altogether. I dare say some of our directors would be, to say the least of it, shocked if they were to see all that goes on in the works on Sunday; and no doubt they would readily agree to any plan that would alter this state of things. I am not to argue from a Sabbatarian point of view, but socially, and as fulfilling the command to do to others as we would be done by; and taking it for granted that we are all agreed that it is the right thing to do, the question remains how it is to be accomplished.

Before I proceed to tell you how my works are conducted on Sunday, it might be well to look at a few of the difficulties put forward, as rendering cessation of work on Sunday impossible or impracticable; though in most cases many of those difficulties turn out to be imaginary when faced with a view to removal.

The first I will mention is hardly a difficulty, but rather an objection, and has been frequently advanced—namely, plant lying idle. This can only be compensated for by the good our stokers may derive from a day of rest, and the fact that we are doing our duty. Besides, as it is only for a short time of the year that all our plant is in use, the objection can only apply to that period. Therefore, I consider it of little consequence. A spark of liberality on our part will set it to one side.

Damage to retorts while not in action is the difficulty we hear most about, but it is one that I consider purely imaginary; for if due care is taken to retain the heat in the setting, there will be no contraction, and if the furnace is not fired up when retorts are not in action, no expansion will take place; therefore the cracking of the retorts is avoided. I, on one occasion, closed up a setting of retorts for over a week, and by merely keeping a slow fire going had them ready to make gas in a few hours, without the trace of a leak. Again, in cooling down a setting, if care be taken, it can be done so slowly as to retain the heat for many days; and the usual cracking sound will not be heard. No doubt most of you have experienced this, and all have had retorts out of action for at least twelve hours; so with your concurrence I will dismiss this difficulty as imaginary also.

Want of storage room. This sounds like a reality, but like most of the other objections only applies to about two months of the year, viz., November and December; and if due advantage is taken of the ample storage we have for ten months of the year, we are pretty far advanced in the question before us. I have known engineers who insisted on working through on Sundays, the consequence being that on Monday the retorts were idle half the day, advantage being taken to clean and scurf them while thus out of action. (I must say that this did not occur in Scotland.) Want of storage, then, though a strong point, does not in every case hold good.

The question of poor gas, or air getting into pipes and holders while lying off on Sunday, is a difficulty that with a little care can be avoided also. First, by keeping all the apparatus full of gas; and various means have been adopted by engineers and managers, according to circumstances, to prevent air or furnace gases being drawn in when the works

are again set in action. And if we can prevent the retorts from cracking in the way I have indicated, this difficulty ceases to exist.

Of course, where iron retorts are in use, in small works, great care is not so necessary. We have only in this case to avoid too high heats—an easy matter all of us know. I have never, for any length of time, been troubled with too high heats, the usual warning, choked ascension pipes, giving due time to reduce temperatures—as I have said, an easy matter to rectify.

Waste of fuel has been mentioned as a reason for not "lying off" on Sunday. Of course, we must use some fuel, but this can be reduced to a very small amount; and we must be prepared to sacrifice something to attain the object in view. If that object be good and desirable, then we must not grudge the sacrifice, knowing that we are making life easier and more enjoyable to a class of our fellow men who have to work hard at not the most agreeable occupation that could be found.

And now, having so far introduced the subject, I will proceed briefly to sketch our plan of operations on Sunday.

Our yearly make of gas is about 26,000,000 cubic feet, and the maximum daily make about 150,000, and we have storage room for that amount—I need hardly say ample capacity. Our stokers are twelve hours on duty, and change from day to night gangs by dividing Saturday into three shifts of eight hours each, each gang working eight hours alternately. The retorts are charged at 5 A. M. on Sunday morning for the last time, so that by 8.30 A. M. the charges are all worked off; the lids being slacked as each charge runs out. When flame disappears at the mouthpiece the lids are screwed up again to keep the air out of the retorts and to prevent the coke from burning. At 6 A. M. the bye-pass of exhauster is opened; the exhauster is stopped, and the gas finds its way to the holder in the ordinary way. No valves are shut; no mistake can occur.

All that is necessary when the works are again started is to start the exhauster and shut the bye-pass. This, however, is not done until at least eight retorts are at work, thus removing any risk of air being drawn in when the make of gas is small. At 6 A. M., before the night men leave work, the main damper is usually shut down, the small dampers on each setting not being interfered with, so that at night only the main one has to be opened. The fires are not clinkered as is usually done, but are allowed to "lie dead," as we term it, great care being taken to exclude all air from the furnace, by iron plates and fenders placed over air openings and, if necessary, made tight with clay luting. In this way the draught is almost completely destroyed, combustion in the furnace reduced to nil, and the heat retained in the setting to a wonderful degree.

I may here mention a plan I have seen used to stop the draught of furnaces without touching any of the dampers; not a good plan by any means, and I trust new to most of you. It was to open a door left in the stack (for cleaning purposes, I presume), and allow a current of cold air to rush up the stack. This effectually destroyed the draught, but at the same time so effectually cooled the inside of the stack that, after closing the opening, many hours would elapse before a good draught could again be established.

Having got furnaces closed up as directed, it is only necessary to give the fires a few shovelfull's of coke every three hours or so until 4 P. M., then they are clinkered and fired up in the usual way till 6 P. M., when the night men come in and begin to charge the retorts; finding, as a rule, the heats as good as they were when charging ceased at 5 A. M., and at times even better.

One man does the Sunday work all the year round, going home to dinner, and at certain times to church; all depending on the number of retorts in use at the time.

You will note that the pressure of the gas from the holders is on the works all day, right back to the hydraulic main. This gives those in charge an opportunity of knowing if all the apparatus is tight; for if any leak exists, of course the station meter will "go back" and show the quantity of gas that is lost. In some instances I have found the meter go back a few cubic feet. On finding and stopping the leak the meter would remain stationary. Again, at other times, the apparatus has been so gas-tight that the meter has gone forward for a few feet, owing to the expansion of the gas in the condensers and other pipes exposed to the sun; returning to the figure again when the sun left them. On rare occasions leaks of consequence have been discovered. This, I think, may be taken as a point in favor of stopping work on Sunday—if it only prove that all our apparatus is gas-tight.

The whole question of "cessation of work on Sunday" devolves itself into one of making a little more gas on other days of the week, so as to make up for the retorts lying out of action for twelve hours on Sunday. And as that day has always the least consumption, it is often the case that during the twelve hours of work on Sunday night enough gas can be made to keep the stock right for Monday. I will take an example. When we are at our maximum make (about 150,000 cubic feet), the make on Sunday would be 75,000 cubic feet, and the output of gas same days 158,000 and 82,000 respectively; showing a reduction in stock of 15,000 cubic feet for the two days, this being balanced by Wednesday night being a very poor one for gas consumption. At this time of the year, also, Saturday's consumption does not reach the highest point.

To have a margin in all matters is a good thing, but not always to be found in a gas works plant, especially in capacity of holders; but if we keep on a few extra retorts this margin can be obtained, and by cessation of work on Sunday the stock of gas will be levelled down, if necessary; and if by any extraordinary demand for gas, either by continued or sudden dull weather, our holders are run down by the end of the week, then the reserve power that we have in store can be utilized by working "through on Sunday." The knowledge that he has this reserve at his command is often a source of relief to a gas manager, even though he may not require to use it. Yet he knows he has it and can afford to smile at his fast diminishing stock of gas, looking forward to making it up when Sunday comes; and often ere it does, things have improved, and we find it not necessary to make gas on Sunday; and the stokers will do all they can to help you to accomplish this. From "hand to mouth" is not a good system, and all who run this risk and their stock of gas "too near the bone" must suffer at times many anxious hours, often hours of unnecessary anxiety if we had only known beforehand how things would turn out. This might have been saved, etc., etc. All this is too fine, and some night they run a rivet too low. The consequence I leave you to picture.

I think I have shown that by keeping our manufacturing power a little above what our actual requirements are, we are not only able to give our stokers a rest on Sunday, but are relieved of some worry ourselves; and this is our share of the benefits derived from "cessation of work on Sunday." This has been my experience, and I doubt not that some of you who are situated like myself, in small works, can bear me out.

Where the works are of a size to admit of working eight-hour shifts much of the foregoing does not apply. Managers of large works do not have the same worry over these matters as managers of small works, the former having, as a rule, more plant at their disposal, more margin to work on.

The eight hours' system is no doubt the best, and goes a long way towards solving the Sunday rest question, as under ordinary circumstances one-third of the stokers employed are free for 24 hours every Sunday, that day being divided into two shifts of 12 hours each. But we can go further. When I worked the eight-hour system it was the custom to "miss" two charges in the middle of the day, viz., 12 and 1 o'clock, thus giving the stokers a rest of two hours for dinner, etc. This, I need not say, was much appreciated, and helped them through their long shift. I use the word stoker, for I take it for granted that, in this country at least, it is only that class of work that is required to be done.

I will just add one more advantage to be gained by "cessation of work on Sunday." I find the retorts that require scurfing are much easier cleaned after lying idle all Sunday, and it is our custom to remove the coke on Sunday morning from any retorts we may be going to scurf on Monday. We find the carbon very easy to remove after the retorts stand empty for 24 hours.

And now gentlemen, having introduced this subject, I trust you will freely discuss it. I do not for a moment imagine that I have done it anything like justice, or treated it in any new way, or told you anything you did not know. I leave it to those who are more able, and have had more experience than myself, to give us the benefit of their opinions, and then I shall feel amply repaid for any effort it has cost me to put these notes together and to read them to you here. It is not an easy task; but I have undertaken it as a duty, with a hope that it may encourage some of you to do likewise, and run the risk of being severely criticised. Nevertheless, no matter how poor a paper may be, if we invoke a lively discussion we may draw valuable information from the most experienced.

It is, I think, five years since our worthy friend, Mr. Smith, of Aberdeen, ably brought the subject, "Sunday Labor in Gas Works," before this Association, and it will be interesting to know what great strides have been taken in those years towards making Sunday in a gas works a day of rest. Therefore, gentlemen, again I ask you to speak freely and let the gas world know that we in Scotland, at least, have not neglected this part of our duty.

Discussion.

Mr. D. M. Nelson (Glasgow)—Our friend has modestly said that he has not given us very much information on this important subject. I think his paper is a very valuable contribution to that question which has exercised the minds of so many gas managers; that is, to give the day of rest to the men under their control. Coming from Mr. Hall, who has had large experience in this country and also in the colonies, it says very much for his judgment and discretion that he has been able to point out a simple method whereby his men get that rest they so much need. Stoking is a very slavish form of labor, and any man who can liberate his men from such slavery, especially on Sundays, is entitled to the thanks of his employees, and of all those who wish to see the sanctity of the Sabbath preserved. Mr. Hall has pointed out a simple method of gaining this privilege for his men, and he has also shown that where we have ample producing power and storage we can carry on our works more profitably than where we are stinted. His evidence is that wherever you have got some surplus to work upon, you thereby economize and produce a better dividend for your shareholders, if it is a gas company, or give cheaper gas to the ratepayers if the works belong to the corporation. Mr. Hall has contributed a valuable addition to the literature of the subject of cessation of work on Sundays, and I have pleasure in proposing a hearty vote of thanks to him.

Mr. J. Hall (St. Andrews)—This is a subject of interest to every gas manager, but the circumstances of gas managers are varied, and what may suit large works may not be suitable for small works. I have not been able to take the advice this paper has given, to have a cessation of work on Sundays. There are two or three difficulties in the way. Our retort power is just sufficient to supply our wants from day to day, and were I to add another oven of retorts I should require to engage two other stokers; hence the cost would be considerably increased.

Mr. Hall (Montrose)—It would only be for two months in the year.

Mr. Hall (St. Andrews)—Yes; but often our retorts get out of order, and two months would turn out to be four months. With the view of lessening the Sunday labor as much as possible, I arrange that the yardman shall relieve the stokers, so that each stoker is off 24 hours every alternate Sunday. Another rule I adopt is to make no more gas on Sunday than is necessary to keep the holders up to the requisite point.

The President—I am sorry a larger number of the members have not taken part in the discussion; but I hope the subject will be taken seriously to heart, and that the valuable suggestions contained in Mr. Hall's paper will not be lost. I trust the question will be considered on the lines laid down by Mr. Hall. There is no doubt that the consideration of the question of ceasing work on Sundays must largely depend on the local circumstances of supply. It is a different thing in the case of a manufacturing town and a residential town. In the case of a manufacturing town the consumption on Saturday is the smallest of the six working days of the week, because the public works are stopped, although the shops may be open till a later hour. That enables those in manufacturing towns to dispense with Sunday labor to a considerable extent. Every corporation ought to provide proper storage capacity as well as retort power, and only as many retorts should be kept going on Sunday as will make as much gas as will meet the day's demand. Sunday labor may therefore be reduced, if not by 12 hours, at least by 6 hours. In my own case, if a man is called out on Sunday morning, I consider him entitled to a whole day's pay, although he should be sent back after two or three hours' work. I trust Mr. Hall's paper will bear good fruit in time to come.

A VERY interesting meeting of the American Institute of Electrical Engineers was held in this city (at the House of the American Society of Civil Engineers) on last Tuesday evening. The paper of the evening was presented by Lieut. F. Jarvis Patten, who spoke on: "Alternating Motors: the Evolution of a New Type."

THE Victorian Minister of Mines has received information to the effect that coal has been struck at a depth of 427 feet by a diamond drill working a quarter of a mile to the westward of Boolara, and the same distance to the north of the property held by the Boolara Coal Company. The outcrop occurs in the bank of a stream within the limits of the Boolara colliery, from which the ground rises to an extensive plateau. The width of the seam at the outcrop was three feet, and the Victorian Department of Mines, with a view to trace its course, sunk a bore some distance north of the stream. No coal deposits were, however, met with, and as the boring party ran short of water, the site had to be abandoned. A bore was then sunk closer to the river, with the result that a seam 3 feet 5 inches thick was met with at a depth of 427 feet.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

MR. C. D. HAUK, General Manager of the National Gas Light and Fuel Company, has prepared the following circular which explains itself: "Pursuant to our former notice that we should institute proceedings against all parties found operating the so-called Pratt and Ryan apparatus and process for manufacturing water gas, constructed in violation of our Springer patents, we have caused suit to be brought against the Paris (Ills.) Gas Light Company for profits and $50,000 damages, and the Aurora (Ills.) Gas Light Company for profits and $50,000 damages, both companies having in use that construction of apparatus. Being determined to enforce our rights, that we may enjoy the exclusive privileges belonging to us as the owners of the Springer patents, we shall follow these suits with others of a like character against all parties found having in use the so-called Pratt & Ryan apparatus and process, or any form of apparatus and process which is an infringement of our Springer patents. And we here give notice that we shall pursue to the end every case that we have occasion to bring against infringing parties. Therefore, we say to all gas companies who have in use or contemplate having constructed for them, the infringing apparatus and process herein mentioned, or any other construction of infringing apparatus and process, to see to it that they are fully protected by good and sufficient bond which is certain of collection in the district in which they reside. * * * We have also caused suit to be brought against the Memphis (Tenn.) Gas Light Company, and T. G. Springer, of Chicago, for profits and $125,000 damages for infringement of our Springer patents—the basis of the suit being an apparatus constructed by the Memphis Company under the direction and supervision of the said Springer, after he ceased his connection with this Company. We hereby notify all gas companies, as well as gas works builders and constructors, that we are the sole and exclusive owners of all Mr. Springer's patents and inventions for and relating to apparatus and process for the manufacture of water gas, and that we shall bring suit against all parties found infringing those patents, whether the apparatus has been designed by Mr, Springer or not. The purchasing of plans and specifications from Mr. Springer will in no way protect you."

AN employee of the Missouri Electric Light Company, St. Louis, was killed by an electric current on the evening of Saturday, Aug. 31. He was a lineman, and was engaged at the time of the accident in adjusting a slack wire on the Vandeventer avenue circuit.

THE Township Committee of Morristown (N. J.) have finally made a contract with the local electric light company for the public lighting of the place. The arrangement calls for the maintenance of 120 incandescent lamps of 25-candle power each. A moontable is to be followed, and the rate per lamp is to be $15 per annum.

JUDGE COX has refused to pass upon the injunction petition presented before the Equity Court by the Washington (D. C.) Gas Light Company, asking that the District Commissioners be restrained from entering into a contract with the Electric Light and Heat Company, of Pittsburg, Pa., for a portion of the public lighting of Washington. The judge based his refusal on the fact that he was a large holder of gas stock. This refusal will bring the case before Justice Bingham, who will pass on its merits, probably within a fortnight. This case is attracting much attention.

THE new sugar refinery of Claus Spreckels, at Philadelphia, Pa., is to be lighted by means of incandescent electric lamps, W. R. Muckle, Jr., & Co., having been authorized to install a plant on the premises capable of maintaining 2,500 lamps of 16-candle power each.

THE proprietors of the Eufala (Ala.) Gas Company have determined to add an electric annex to their gas plant. The Thomson-Houston Company will make the installation. In the meantime the gas works will also be enlarged.

THE International Trust Company, of Boston, Mass., as mortgagee and trustee of a loan issued on the real estate, franchises and plant of the Citizens Steam and Gas Light Company, of Lynn, Mass.—Lowe system—has given notice that it will, on December 14, next, sell at public auction, for cash, all the possessions and appurtenances of the Company. The interest on the loan has been in default for something over three months.

MR. FRANK A. JONES, Assistant Superintendent of the Memphis Gas Light Company, is no longer a bachelor. The interesting ceremony that caused this change took place about a fortnight ago.

THE annual fall illumination by gas of the store fronts on the main avenues of Buffalo, N. Y., which we believe is kept up through what is known as "Fair Week," is this year a pronounced success. A correspondent, in noting the appearance of Main street on the first evening of the illumination, says: "Looking either up or down Main street the sight was a very pretty one. In front of the two newspaper offices gas-jet signs designated the abiding places of the *Courier* and *News*. Just below Seneca street an arch spans Main street, and arches on each side of Main cross Seneca street. The Bank of Buffalo contributes to the brilliancy of the illumination a handsome gas-jet display carrying the name of the bank, with a wheel at each end. Messrs. Barnes, Hengerer & Co.'s large store was handsomely illuminated, the large electric chandelier above the entrance being much admired. Further up the street the store windows of Weed & Co., Gorton & Sons, Schlund & Doll and A. Neupert & Co., made a brilliant showing. Probably the most effective private display is that kept up by the German Insurance Company and the German Bank. Around the second story of this fine building is ranged a row of colored globes, broken at appropriate intervals by standards, the effect being beautiful in the extreme. Another very pretty display is that of George P. Newman, who has 27 jets arranged tastefully over the entrance to his store. The *Frei Presse* displays a semi-circular row of lights inclosed in colored globes. Messrs. Jno. Seifert and Otto Keikebush favor electric lights, which are placed in a row above the curb. There are many other handsome exhibitions, and the general verdict is that the illumination this year will far surpass the really effective display of a year ago.—R. T."

IN further explanation of the suit (the bringing of which was briefly noted in the JOURNAL of a fortnight ago) of John F. Lewis against the city of Philadelphia, to recover damages to property and person in consequence of an explosion of gas that occurred last June in the premises owned by him at Nos. 2,415 and 2,417 Wright street, a correspondent writes: "The house, 2,417 Wright street, was tenanted by Wm. Hanley, and it was in his house that the explosion took place. Mrs. Hanley had left the house for a short visit, and the accident happened in her absence. There were no gas fixtures in the house, but a service pipe had been run into the cellar from the street main, and the complainant alleges that the inspector, in turning the gas on, made a mistake by turning the gas into the wrong house. In other words, that the gas should have been sent into 2,415 Wright street instead of into No. 2,417. A fire was burning in a stove in the kitchen of the latter premises, and the escaping gas was speedily ignited. The place was wrecked badly, and this suit is the result. The damages amounted to $2,500, and it is for that sum that Lewis seeks to mulct the city.—S. A."

MR. F. D. MOSES, whose recently-patented gas manufacturing apparatus is illustrated and described on another page of this issue, is not unknown to the Western gas makers. He occupied for some time a subordinate position in the works of the Indianapolis (Ind.) Gas Light and Coke Company, and subsequently entered the construction department of the National Gas Light and Fuel Company, of Chicago. He was also at one period connected with the Kerr Murray Manufacturing Company, of Fort Wayne, Ind. If we mistake not Mr. Moses was the superintending constructor of the gas fuel plant installed by the Addyston Steel and Iron Pipe Works, the inspection of which formed such a pleasant feature of the outing time of the May gathering of the Western Gas Association.

THE proprietors of the Columbus (Ga.) Gas Light Company have taken another stride (the fifth successive step in the last five years) towards increased popularity by again announcing a reduction in gas rates. From and after the first instant, the net rate is to be $1.75 per 1,000 cubic feet. In September, 1883, the net rate was $3 per 1,000. Supt. Jenkins is evidently the right man in the right place.

THE Lawrence (Mass.) Gas Company will extend its mains to the adjoining town of Andover, the necessary permission having been obtained from the local authority and the Board of Gas and Electric Light Commissioners.

THE business of the Morristown (N. J.) Gas Light Company increased so rapidly last winter as to often cause it to become problematical during the long, dark and busy nights of December and January whether the scant storage capacity of the plant could be strained with safety. This spring, however, the proprietors determined to end all doubt on this score for the coming dark season, and accordingly awarded a contract for an additional gasholder to Messrs. Deily & Fowler, of Philadelphia, the contract for the construction of the tank having been given to Messrs. Sturges Bros., of Morristown. The capacity of the new holder is 45,000 cubic feet, and so well have the contractors kept up to their agreement (the contract called for the completion of the work by the 16th inst.) that the vessel could have been put in duty some days ago. The following figures may prove of interest, as showing how closely the local gas makers are identified with the material prosperity of Morristown. For instance, the Company made the following payments for labor (not including salaries) during the periods mentioned: 1887, $2,878.64; 1888, $2,896.13; 1889 (first six months), $1,281.12, or a total of $7,055.89. In 1888 its payments on tax account amounted to $979.38, divided as follows: On State account, $227.32; on joint State and county account, $516.06; on city account, $236. During the years noted the main extensions were as follows: In 1886, 10,056 feet; 1887, 2,250 feet; 1888, 6,200 feet; 1889 (6 months), 1,530 feet. This looks like progress.

ON September 8th the Associated Press man located in Upper Sandusky, O., said that in that city, on the night previous, a natural gas well, conceded to be the biggest in the world, was "drilled in." The estimated per diem capacity of the "roarer" was put at 50 million cubic feet.

MR. N. P. STEVENS, Superintendent of the electric department of the Concord (N. H.) Gas Company's plant, handed in his resignation last week. Mr. W. A. Richmond will probably be chosen to succeed him.

SUPERINTENDENT JONES, of the Street Paving Department of Boston, Mass., has refused a permit to the Boston Gas Light Company to dig up Doane and Adams streets, for the purpose of overhauling its conduits. These streets had recently been repaved with concrete, and the Superintendent bases his refusal on an opinion from the Corporation Counsel. The courts will undoubtedly be appealed to.

AT a recent meeting of the "Single Tax Club," of Chicago, a lively discussion resulted in the adoption of the following, which was handed to Mayor Cregier for presentation to the City Council:

"*Whereas*, As a resolution has been introduced in the City Council by Ald. McGuery, and has been referred to the Committee on Gas, which resolution read as follows:

"*Resolved*, That the Mayor appoint a committee of five to act with him to investigate the feasibility of the city of Chicago establishing a municipal gas plant for the purpose of furnishing gas to the city of Chicago and its citizens for lighting and heating purposes, and that they report to the Council at their earliest convenience; and

"*Whereas*, This would be an important step in the direction of relieving the people of obnoxious and unreasonable charges by the Gas Trust and give the people the same benefits they now enjoy from municipal control of our water works; and

"*Whereas*, The supplying of gas is one of those public functions that should always be controlled by the people and never pass into the hands of private corporations; and

"*Whereas*, The people have emphatically declared in favor of all such public franchises being held by the municipal government; therefore, be it

"*Resolved*, That we heartily indorse this plan, and urge the City Council and the Mayor to make a beginning at the earliest possible moment, and extend the plant as rapidly as circumstances will permit; and be it further

"*Resolved*, That any further overriding of the people's rights by granting gas franchises to new corporations will only complicate the matter and in no way relieve the burdens of the people." There is a good deal of cheap and flimsy buncombe in the above sets of "Whereases and resolves"—in fact, the only grain of common sense in the whole palaver is contained in the final clause of the last "resolve;" and that grain is there evidently through an error.

MR. HENRY E. FANSHAWE, of this city, who was and is prominently identified with the fortunes of the Bay State gas syndicate, is the real power behind the movement for the absorption of the San Diego (Cal.) Gas and Electric Light Company. It appears that the proprietors of the latter are disinclined or unable to make the necessary plant extensions for the proper supply of gas in San Diego—which place is growing with amazing rapidity—and have agreed to dispose of control in the Company to Mr. Fanshawe and his associates. The price agreed on is a very fair one to the holders of shares. This puts an end to all danger of an opposition Company for San Diego. The works will be virtually rebuilt, and a large amount of main extension will be platted out.

ARTICLES incorporating the Council Bluffs (Iowa) Gas and Electric Light Company have been filed by Messrs. Charles Q. Easton and Wal-

ter S. Wright. The stated objects are: "To make gas for fuel and lighting purposes and electricity for lighting purposes." The lite of the Company is placed at 50 years, and it is capitalized in $50,000.

MR. A. B. GAINES, President of the Garland Gas Light Company, of Hot Springs, Ark., has authorized Superintendent W. M. Wilson to make the following business-like announcement: "The Garland Gas Light Company, having built an entire new plant, and laid a new line of main pipes, is now prepared to furnish gas of a quality 25 per cent. better, and giving 25 per cent. more light than heretofore. The following scale of prices for private consumers has been adopted:

Under 5,000 cubic feet.....	$3.25	per 1,000
5,000 and under 10,000 feet.....	3.15	"
10,000 " 15,000 "	3.00	"
15,000 " 50,000 "	2.85	"
50,000 and over.....	2.70	"

From these prices, which are strictly for cash, a deduction of 25 cents per thousand is made, if paid within the first 5 business days of the month at the Company's office. At these prices gas is much cheaper and safer than oil, and cheaper and much more pleasant to the eyes than any other light."

WHEN interrogated the other day as to what progress was being made by the Mutual Gas Light Company, of Savannah, Ga., in the installation of the proposed electric plant, Supt. Douglas replied that the Company is waiting on the action of the city in respect to sealed bids for the public lighting, the contract to date from Jan. 1, 1890. In case the bid of the Mutual Gas Company is accepted, the latter will be required to put in a large plant. In other words, the capacity of the plant will be regulated according to the action of the authorities.

THE Duquoin Gas Light Company has been incorporated by Messrs. Geo. W. Wall, P. N. Pope and J. M. Browning, with a capital of $30,000. This place is a post village of Perry county, Ills., at a point on the Illinois Central Railroad 77 miles north of Cairo, Ills., and 71 miles southeast of St. Louis, Mo. It is connected by rail with the latter place. Vast deposits of a fairly good bituminous coal are mined at this point. Population about 6,300.

THE electricians are naturally anxious to increase their hold on the public lighting of Montreal, Canada, and at a recent meeting of the Light Committee of Council the proposition to add more incandescent lamps to those now in use was agitated. During the discussion Mayor Greuier recommended that the city confine itself to the 800 arcs now maintained, and instead of locating incandescent lights in places where the streets were not sufficiently illuminated, gas lamps should be employed. One thing that seemed to be regarded as certain was that incandescent electric lamps showed no superiority over gas lamps in the matter of lighting value.

AT a meeting of the Grand Rapids (Mich.) Council (4th inst.) a communication from the projectors of the Fuel Gas Company was read. The prayer stated that the Company had purchased land whereon to erect a plant, and made contracts for materials, etc., in consideration of which it asked that the time in which it was required to commence work be extended from Sept. 1 to Dec. 1. Ald. O'Donnell moved that the request be granted, which motion impelled Mr. E. F. Uhl to address the Council in opposition. Mr. Uhl thought that the Company had forfeited its franchise, for two extensions had already been given it—from June 1 (as fixed in the original ordinance) to July 1, and from the latter date to September 1. He then asserted that the actions of the proprietors were clearly such as to bring upon them the charge that the franchise was sought and obtained mainly for speculative purposes. The Council, however, finally agreed to extend the time to the date named in the petition.

THE Kings County (L. I.) authorities have decided to shut down the gas works at the Penitentiary.

MR. E. C. HATHAWAY, formerly in the service of the Equitable Company, of Baltimore, before the consolidation of the latter with the other local Companies, is now connected with the Colorado Springs (Col.) Gas Light Company. The Company's business is increasing with great rapidity.

WHEN the Bay State Gas Company secured control of the independent Company that supplied gas in the Dorchester district, the new proprietors, in a laudable attempt to curtail distribution charges, dispensed with several hands employed under the old regime. Among those whose official head was severed was old reliable John Spear, who for years had acted as Collector for the Dorchester Company. Since the abolition of the post of Collector consumers in the district have had to pay their bills at the office on Glover's corner, an operation that inconveniences them greatly. In consequence of this, much complaint is being made. We always gave Mr. Addicks credit for being a pronouncedly clever business man, and hence must confess surprise at his action in this instance; for surely the controlling genius of the Bay State gas syndicate knows about as well as anybody can know that saving at the spigot does not count for much when the bunghole manifests a leaky tendency. Better put Collector Spear back in his old place.

A WHISPER from the far West is to the effect that the Executive Committee of the Western Gas Association will convene at the Baltimore meeting of the American Association, and Secretary Littleton is said to be having a number of gilt *pasteboard* badges prepared for the purpose of distinguishing the "Westerners." It was intended to have the gold badges—adopted by the Western at its last meeting—ready for the occasion; but partly owing to the failure of the corn crop in Kansas, gold came "too high" to be of use in time, therefore pasteboard had to be substituted—reluctantly, of course—for the present. Time alone prevents a rational explanation of what the corn crop of Kansas has to do with the matter. Secretary Littleton will, however, make the whole thing plain to any one who inquires about it at the Baltimore tryst.

EX-PRESIDENT RAMSDELL made a flying trip to the East last week. He is in splendid health and spirits, and reports that there is "nothing wrong" with the Vincennes Gas Light Company's business. How could there be with such a master hand on the helm?

IN our last it was hinted that the struggle for supremacy over the lighting interests of New Brunswick, N. J., was soon to be brought to an end in the purchase by the Gas Company of the local Electric Light Company. The announcement, however, seems to have been more than premature; for in reality the Gas Company's proprietors are not disposed to make any terms with their rivals.

AT the annual meeting of the Marlboro (Mass.) Gas Company the following executive management was chosen: President, S. H. Howe; Clerk and Treasurer, H. S. Crowell; Directors, E. F. Johnson, S. H. Howe, Winslow M. Warren, H. S. Crowell and H. F. Coggshall. The records for the year's business show that a satisfactory state of affairs exists in Mr. Coggshall's district, the increase in sendout for the twelvemonth just closed over that of the previous year being but a trifle short of 10 per cent.

LATE in August Messrs. A. A. Woods and associates applied to the City Council of New Orleans for an ordinance granting them the right, for a term of 50 years, to manufacture and distribute fuel gas in that city. They agreed to charge not over 75 cents per 1,000 to ordinary consumers, the public buildings to be supplied at the rate of 37½ cents. The grantees asserted their willingness to file a bond obliging them to commence the construction of their works within twelve months from the passage of the ordinance, failure to so do to result in a forfeiture of their rights under the ordinance. The petition was referred to the Streets and Landings Committee, who subsequently reported that in consequence of the U. S. Supreme Court decision affirming the exclusive right of the New Orleans Gas Light Company to manufacture and sell gas in the city, the Council could not entertain or consider the Woods proposition.

THE coal shovellers employed at the Fall River (Mass.) gas works went on strike about 10 days ago. They had been receiving 15 cents per hour, but demanded 25 cents. The Company offered to compromise on the basis of 20 cents, but this the strikers refused to accept. Their places have been filled.

A FRANCHISE has been granted by the Selectmen to the projectors of the Randolph and Holbrook (Mass.) Electric Light, Power and Gas Company, the plant to be built in six months from 1st inst. The electric supply will be first arranged for. Randolph (Holbrook adjoins it) is a post village in Randolph township, Norfolk county, and is about 15 miles south of Boston. It is quite a manufacturing center, and is reached by the Old Colony Railroad. Population of both places, about 7,500. There is no doubt that a gas works ought to there prove a paying investment.

THE Illinois Central Railroad will erect its own works in Chicago for the manufacture and compression of the gas used for the illumination

of its coaches. The gas is kept under a pressure of 200 pounds to the square inch, and the supply tanks (there are three to each coach) are calculated to contain 200 cubic feet each. The Company is greatly pleased with the duty obtained.

THERE is pending before the Council of Cincinnati a general ordinance regarding the stringing of wires, etc., for the supply of electric lighting. In connection with the discussion of the subject, Ald. Buchanan submitted a statement showing the prices paid at various points in the country for 2,000-candle power arcs, all-night schedule. We give the following *resume* of the figures:

	No. lights.	Price per light per year.
Albany, N. Y.	481	$182.50
Rochester, N. Y.	252	104.50
Kansas City, Mo.	60	200.00
Salem, Mass.	160	164.25
Hoboken, N. J.	10	146.00
Manchester, N. H.	235	156.95
Fargo, Dak.	25	240.00
Newark, N. J.	81	146.00
Dayton, O.	122	150.00
Akron, O.	171	151.48
Kalamazoo, Mich.	128	182.50
Springfield, Ills.	100	137.50
Boston, Mass.	700	237.50
Des Moines, Iowa.	88	141.60
Texarkana, Ark.	18	160.00
Grand Rapids, Mich.	110	140.00
Washington, D. C.	350	182.50
Camden, N. J.	85	146.00
Plymouth, Pa.	12	146.00
Duluth, Minn.	180	127.00
Scranton, Pa.	322	73.00
Binghamton, N. Y.	100	140.00
Syracuse, N. Y.	300	144.00
Fall River, Mass.	50	180.00
Philadelphia, Pa.	133	200.75
Aspen, Col.	16	216.00
Montgomery, Ala.	100	155.18
East Saginaw, Mich.	126	140.00
Brooklyn, N. Y.	1100	182.50

A CORRESPONDENT, writing under date of September 7th, writes: "I inclose you the following, which shows that Supt. Wirt and his Company, at Independence, Mo., are up to the times. At a meeting of the Directors of the Gas Company Supt. Wirt was instructed to order at once and install the necessary machinery for the manufacture of a combination of coal and oil gas similar to that employed by the Laclede Gas Company, of St. Louis. With these improvements they expect to make a better quality of gas for less money, and will start out with a new schedule of prices for gas consumed after October 1st, when they expect to have the new plant in operation. The rates are:

Less than 1,000 cu. ft. per month		$2.50	per 1,000
1,000 to 5,000	" "	2.00	"
5,000 to 10,000	" "	1.95	"
10,000 to 15,000	" "	1.90	"
15,000 to 20,000	" "	1.85	"
20,000 to 25,000	" "	1.80	"
25,000 cu. ft. and over	"	1.75	"

"In connection with the general lighting interests of the city I might mention that for the last two years quite an interesting contest was carried on between the Gas Company and an electric lighting concern. Local capitalists who, in 1886, thought the gas works proprietors were doubling their money each year, concluded to operate an arc and incandescent electric light supply, in the complete belief that, if they were not able to wipe out the gas property as a whole, they would at least soon be furnishing a majority of the consumers of the place with light. Of course, the opposition started in with all the glory and noise that the establishment of an electric lighting enterprise seems to demand. The contest was kept up for perhaps two years, during which period arc lights were supplied to stores at the rate of $5 each per month, and the city was offered an all-night service on the same basis. The city refused to give them a contract. A few stores took the lights, and some street lights were maintained on private account. Incandescent lights were put in and kept up at the user's own rate. Gas was also furnished at low figures—in some instances the price went below $2 per 1,000. This state of affairs continued until the 7th of August, when the electric plant was shut down, and on the 23d of August the works were sold, under deed of trust, for $7,000. The machinery is stored at different places throughout the town, and the boiler stands mounted on trucks in the center of one of the side streets. The purchaser is one of the old stockholders, and he promised to have the plant reconstructed and in operation by the 1st inst. So far, however, no move has been made in that direction. This makes quite a contrast to the progress of the Gas Company, which, besides increasing its capacity, now offers a further concession in prices to its consumers.—MISSOURI."

WE are called upon to chronicle the death, on August 31st, of Jessie Roots, wife of D. T. Roots, of Connersville, Ind. She was a most estimable woman.

Correspondence

[The JOURNAL is not responsible for the opinions expressed by correspondents.]

Important to Chilian and Peruvian Gas Companies.

CITY OF DUNEDIN SUBURBAN GAS CO., LTD.,
CAVERSHAM, N. Z., Aug. 7, 1889.

To the Editor AMERICAN GAS LIGHT JOURNAL:

Probably the following may be of service to the above companies *re* their coal supply: On Friday, the 2d of August, the ship "Caitloch" left the port of Dunedin in ballast for Iquique, where she was to load saltpeter for London. I only knew a day or two before the vessel sailed, but after some little trouble and expense I made arrangements with the Captain to take about 20 tons of our best New Zealand gas coal to be distributed amongst the following gas companies, viz, Valparaiso, Santiago, Iquique, San Felipe, and Lima. By some misunderstanding, however, it was not shipped, as the Captain, at the last moment, told my agent he would not be troubled with it, as he did not know the charges, etc., that would be payable, or whether carrying even so small a quantity of cargo as 20 tons would not render his ship liable for full port and other charges on the ballast upon his arrival at Chili.

Now, for the future, as there are occasions when vessels leave New Zealand ports in ballast for Chilian and Peruvian ports, there to load up with saltpeter, copper, and other produce from these countries, would it not be as well for the companies interested to take a cargo of coal, as it would be carried at a cheap rate, in lieu of ballast?

The New Zealand coal, *i. e.*, that from the west coast of New Zealand, is a splendid coal for gas making purposes. There are three classes of this coal, viz.: (1) The Brunner coal, which I use at the Caversham gas works, and which yields 11,600 to 12,000 cubic feet of gas of 19 to 20 candle power, 13½ cwt. of good coke, and 13 gallons of tar per ton; (2) the Coal-pit Heath coal; (3) the Coalbrook Dale coal. These latter are almost equally as good as the Brunner coal. The question is what can these companies afford to pay for the coal per ton in Chili? Should any of the companies interested wish to learn the results obtainable from the Brunner coal, I believe Mr. F. J. Haseltine, the Chairman, or Mr. E. W. Layton, the Secretary of the City of Dunedin Suburban Gas Company, Ltd., No. 2 East India avenue, would allow the monthly carbonizing returns, which I send home to them, to be examined. The companies could then judge for themselves the results, and of the value of the coal to them. Most probably if the shipping companies or shipowners were interviewed in London, arrangements might be made for a round cargo.

The Captain informed me it was about a three weeks' run from New Zealand to Iquique. In conclusion, I shall be pleased to furnish any information, and, if thought desirable, to do what I can to assist in making arrangements for securing a first-class cargo for shipment when occasion offers. I have the honor to be, yours truly,

WM. DALEY, Engineer and Attorney.

The Market for Gas Securities.

The market for city gas shares showed more animation during the past week than at any other like period for perhaps three months back. There was a fair demand for Consolidated, which moved up on purchasing orders—chiefly for small lots—to 88¼. This is but the beginning of the upward movement, and we confidently look forward to a rise to 92 before the holidays. Brooklyn shares are somewhat uneven, but the market is strong. Chicago Trusts are also ragged, but are in demand. The projectors of the opposition movement at Elizabeth, N. J., are looking for purchasers for their bond issue. The plant and franchises of the Lynn (Mass.) Citizens Steam and Fuel Gas Company are to be sold at auction next December. The general outlook is favorable.

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The Seventeenth Annual Meeting of the American Gas Light Association

Will be Held at Baltimore, Md., Oct. 16, 17 & 18.

Persons thinking of joining the Association should read the following extract from the Constitution: "SEC. 12. Applications for Active Membership, or for Associate Membership, or for transfer from Associate to Active Membership, must be received by the Secretary at least ten days prior to the meeting at which the application is acted on." Application blanks will be furnished by the Secretary.

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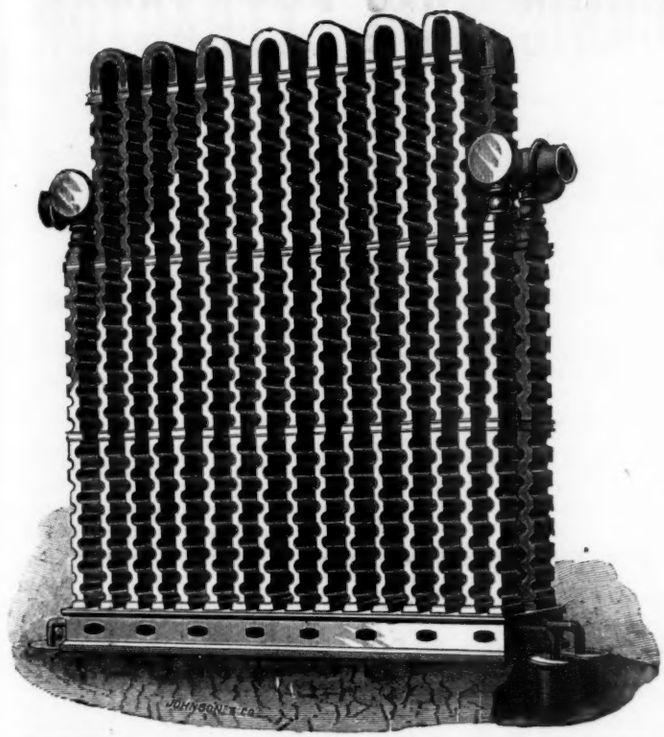

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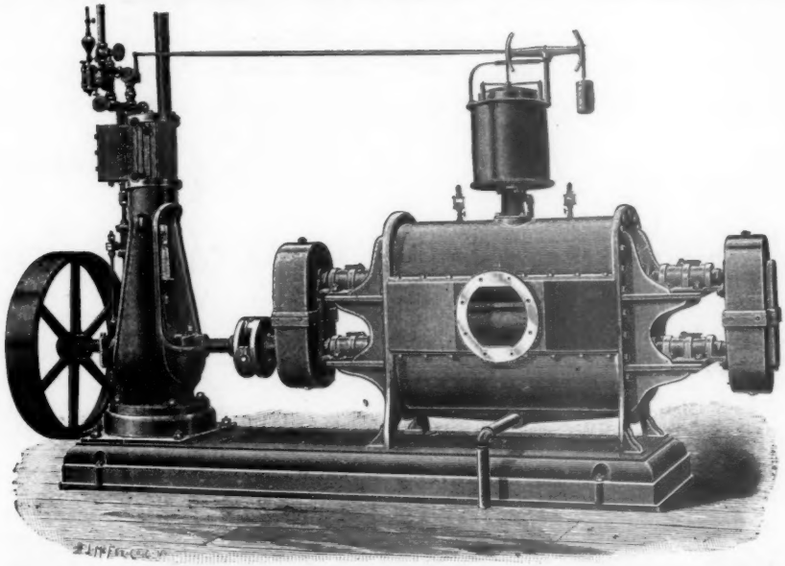

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No. 4,	"	"	500,000	"	"	"	6	"	"	"	"
No. 5,	"	"	750,000	"	"	"	7	"	"	"	"
No. 6,	"	"	1,000,000	"	"	"	8	"	"	"	"
No. 7,	"	"	1,250,000	"	"	"	9	"	"	"	"
No. 8,	"	"	1,500,000	"	"	"	10	"	"	"	"
No. 9,	"	"	2,000,000	"	"	"	12	"	"	"	"
No. 10,	"	"	3,000,000	"	"	"	15	"	"	"	"

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Los Angeles Gas Co.	Los Angeles, Cal.
San Diego Gas Fuel & Electric Lt. Co	San Diego, Cal.
Sioux Falls Gas Co.	Sioux Falls, Dak.
Dakota Gas and Fuel Co.	Grand Forks, Dak.
St. Johns Mutual Gas Co.	St. Johns, Mich.
Stillwater Gas Light Co.	Stillwater, Minn.
St. Paul Gas Light Co	St. Paul, Minn.
Emporia Electric and Gas Light Co.	Emporia, Kas.
Van Wert Gas Light Co.	Van Wert, Ohio.
Lansing Gas Light Co.	Lansing, Mich.
San Francisco Gas Lt. Co.	San Francisco, Cal.
Shelbyville Gas Light Co.	Shelbyville, Ind.
Great Falls Gas Light Co.	Great Falls, N. H.
Belleville Gas Co.	Belleville, Ontario
Rochester Lt. and Fuel Co.	Rochester, Minn.
Northwestern Gas Light and Coke Co.	Evanston, Ill.
Lincoln Gas Light Co.	Lincoln, Neb.
Davenport Gas Light Co	Davenport, Iowa.
Municipal Gas Co.	Albany, N. Y.
Alliance Gas Light Co.	Alliance, Ohio.
New Gas Light Co.	Janesville, Wis.
*Chicago Gas Light & Coke Co.	Chicago, Ill.
*Joliet Gas Co.	Joliet, Ills.
*Superior Light & Fuel Co.	Superior, Wis.
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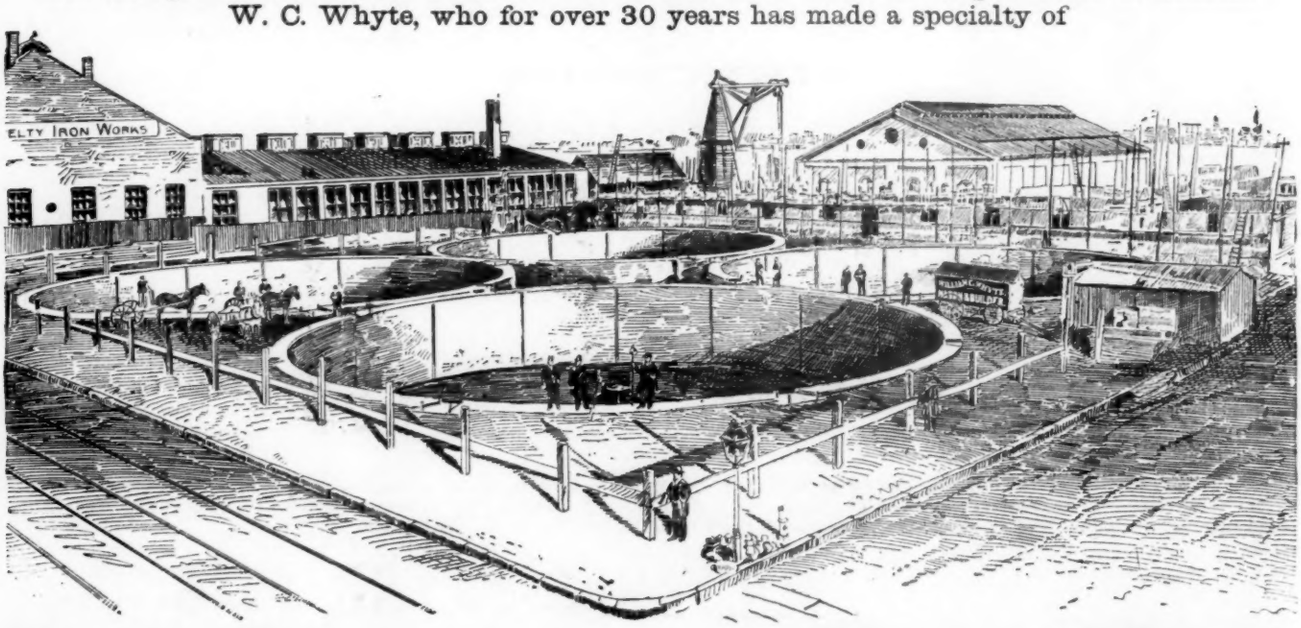

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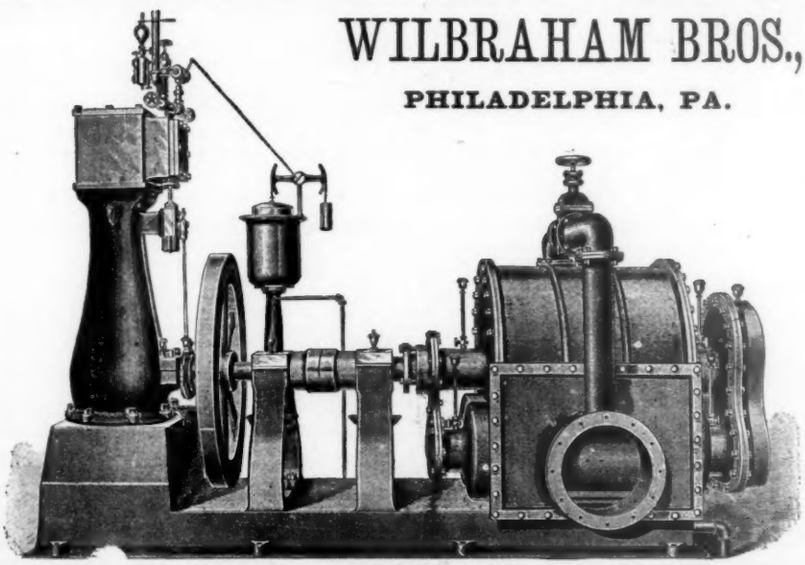

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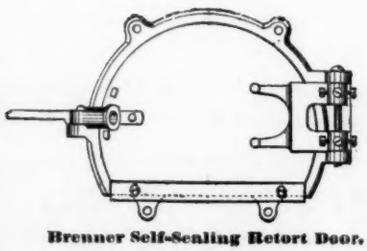

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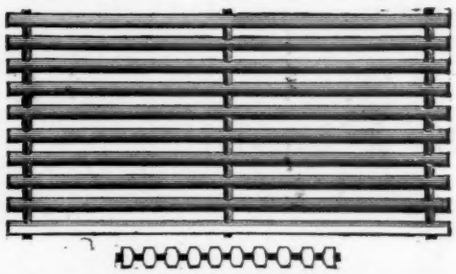

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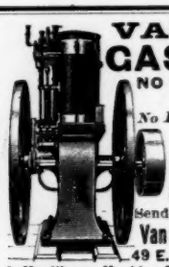

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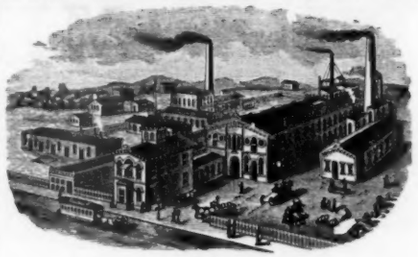

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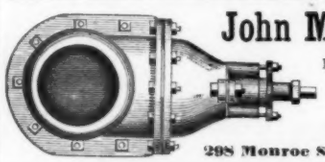

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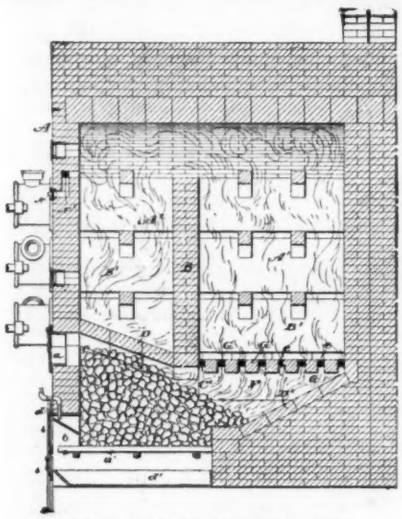

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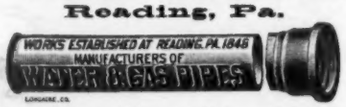

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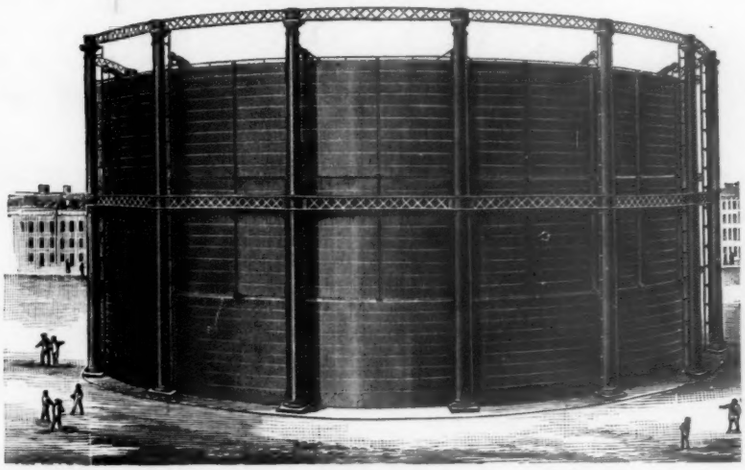

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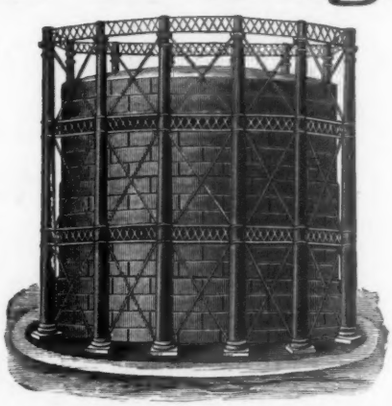

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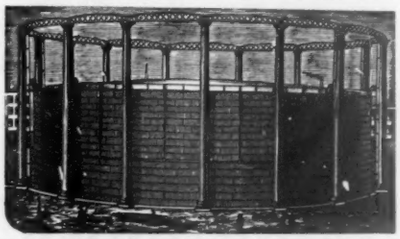
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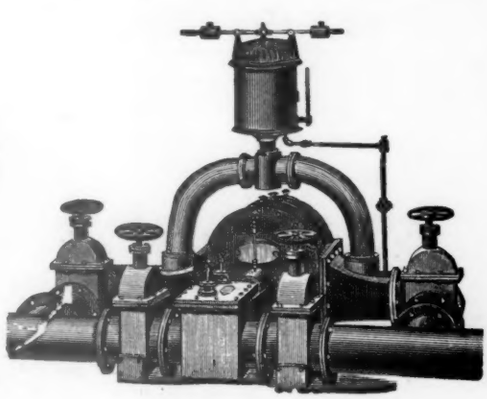

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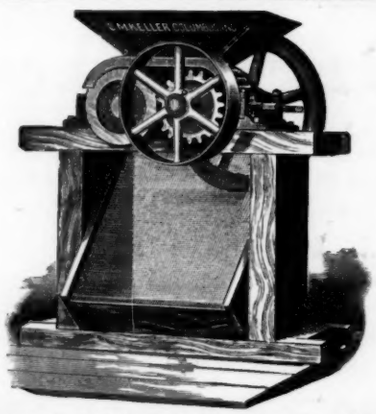

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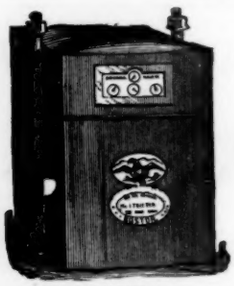

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